

On Computing a Function of Correlated Sources

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A receiver wants to compute a function f of two correlated sources X and Y and side information Z . What is the minimum number of bits that needs to be communicated by each transmitter?

In this paper, we derive inner and outer bounds to the rate region of this problem which coincide in the cases where f is partially invertible and where the sources are independent given the side information.

These rate regions point to an important difference with the single source case. Whereas for the latter it is sufficient to consider independent sets of some suitable characteristic graph, for multiple sources such a restriction is suboptimal and multisets are necessary.

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